



November 15 -17, 2005: Town & Country Convention Center - San Diego, CA

FORCEnet Enterprise Networking

IT-21 Overview

Nick Freije

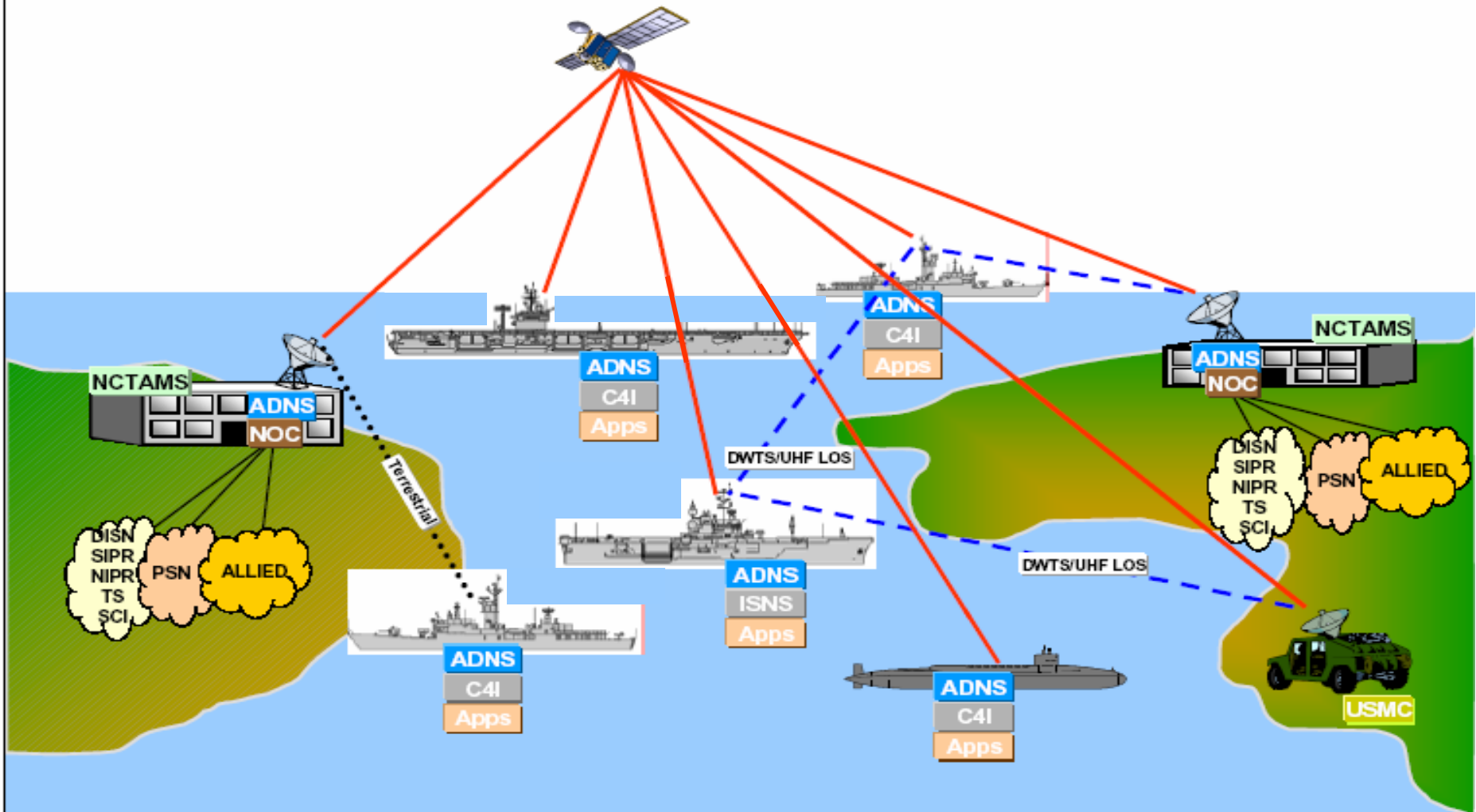
Afloat Networks Chief Engineer
PEO C4I & Space PMW 160.1
November 2005

Statement A: Approved for public release;
distribution is unlimited (10 NOVEMBER 2005)

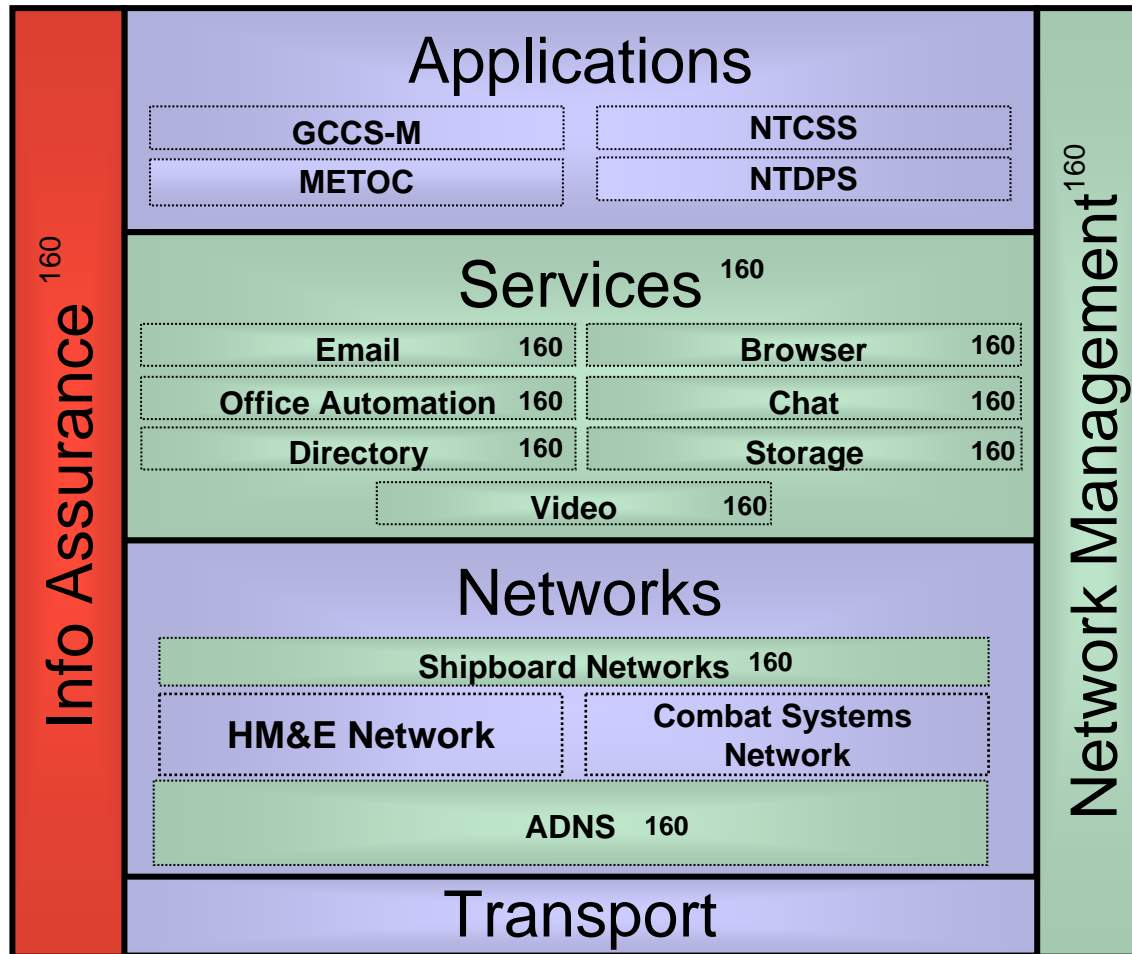
Sponsored by **SPAWAR**
SPAWARSYSCOM
FORCEnet Chief Engineer



End-to-End Capability Enabler



Current IT-21 Overarching Afloat Framework



**Goal is to provide a secure information infrastructure to support all
AUTHORIZED IT-21 client/server applications**



PMW160 Products comprising IT-21



PM
Mr. Rob Wolborsky

DPM
CAPT (sel) Bob Parker

***Afloat
Networks
PMW 160-1***

***CRYPTO &
Key Mgt.
PMW 160-2***

***Enterprise
Services
PMW 160-3***

***Network
Security
PMW 160-4***

ISNS

ADNS

SCI Networks

SubLAN

CENTRIXS-M

VIXS

Workstations (PCs)

KG-3X

KG-40AR

DMS Infosec CAW

Crypto Products

EKMS

PKI

Biometrics

Secure Voice

Crypto Mod

DMS

Tactical Messaging

NGDS

NMCP

COMPOSE

TDAMS

Network Management

NREMS

CFn

JCDX

CND

CDS

DII Guards

IA Readiness Services

NMCI IA

Radiant Mercury

ONE NET IA

The "IT-21" Components



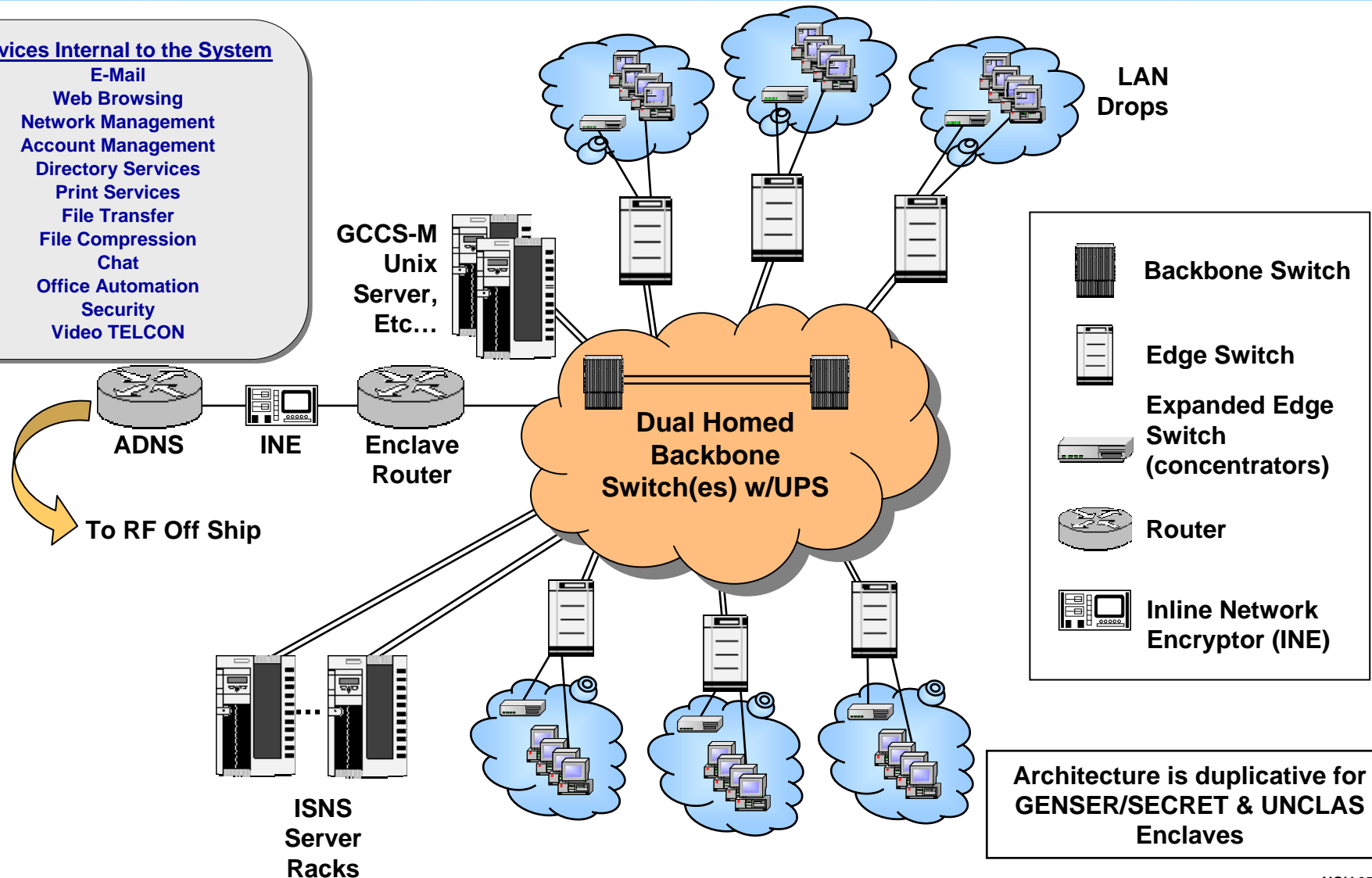
Generic Integrated Shipboard Network System (ISNS) Architecture

(ATM/GigE/Fast Ethernet)

FORCEnet
engineering
conference

Services Internal to the System

E-Mail
Web Browsing
Network Management
Account Management
Directory Services
Print Services
File Transfer
File Compression
Chat
Office Automation
Security
Video TELCON



ISNS Population

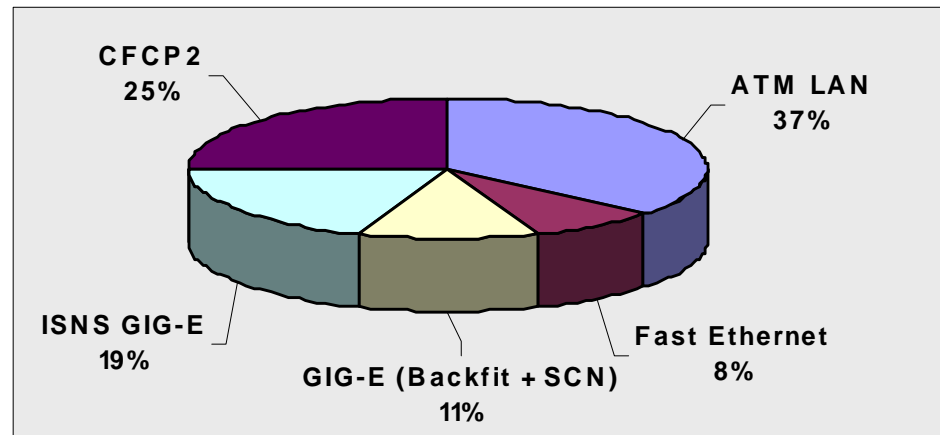
151 ships

- ATM = 55 Ships
- Fast Ethernet (100MB)= 12 Ships
- Gigabit Ethernet (GIG E) Backfit and SCN = 17 Ships
- ISNS GIG-E LAN = 29 Ships
- CFCP2 = 38 Ships

The following ship classes are used in this chart:

AS, FFG, DDG, CG, LSD, LHA, LHD, LPD(3), LCC, CV/CVN, and MCM

Note - Numbers as of end of CY04



Standardizing to a combat survivable Gig-E design



ISNS LAN Info



ISNS Increment I LAN Info & Costs					
Ship Class	LAN Type	Unclass Drop Qty.	Class Drop Qty.	Total # of Workstations	# of Servers
AS	A(V)1	384	240	520	8
CG	A(V)9	152	64	179	8
CV/N	A(V)2	2344	357	2288	19
DDG	A(V)9	156	57	176	8
FFG	A(V)9	93	36	106	8
LCC	A(V)1	795	581	1205	22
LHA	A(V)1	963	345	1108	22
LHD	A(V)1	1179	543	1454	22
LPD	A(V)9	499	214	600	14
LSD	A(V)9	216	74	241	14
MCM	(V)8	50	15	54	6

Standardizing C4I networks for the NAVY



ISNS Increment II Sample Capabilities



❖ Higher availability and survivability

- Improve network survivability in designated space by connecting workstations to separate switches
- Place server and switch racks on ABT (vital power)
- Disk to disk backup for servers

❖ Keep intruders off the network and prevent network attacks

- Security lockdowns through directory based group policies
- Automated IAVA patch management

❖ Manage the network and support a network User Defined Common Operational Picture (UDCOP)

- Proactive mgt to increase reliability of the network
- Monitor BW consumption by various apps and end-to-end response time

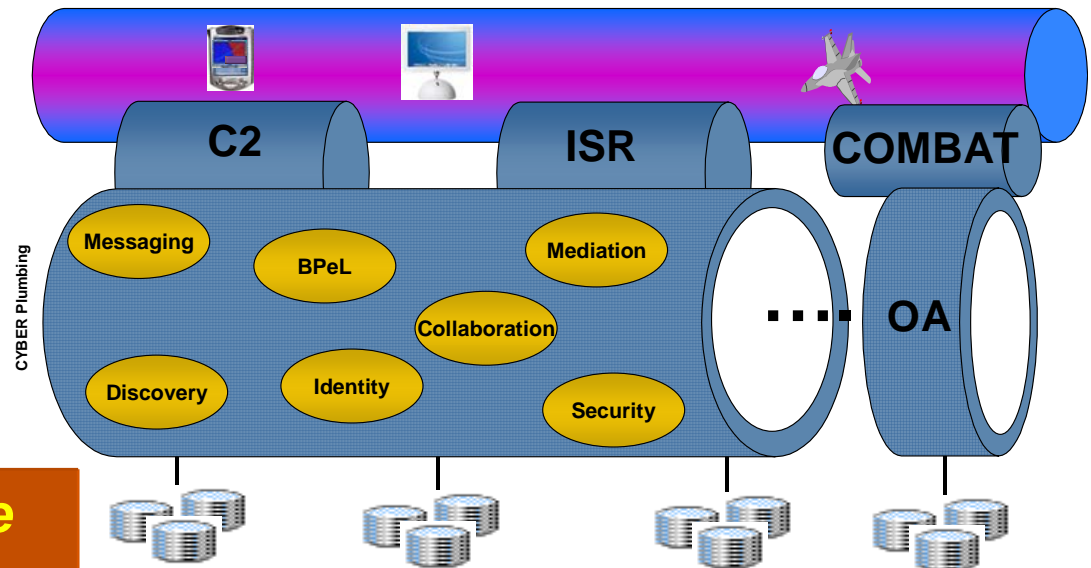
❖ Improved high data rate and access

- Support VoIP using QoS and traffic prioritization (e.g. low jitter, low delay)
- Wireless

ISNS Increment III Sample Capabilities

❖ Improved speed of information flow and assured information access by enabling the tactical edge services

- Fully integrated voice and video over IP
- Transformational client server architectures
- Fully implemented Tactical Edge Services for integrated afloat and ashore Service Oriented Architectures (e.g. NCES)



**Providing Enterprise Core
Services by leveraging
existing efforts**



ADNS TODAY and TOMORROW



❖ Today's NAVY WAN:

- Single Path Access, No Restoral, Best Effort, Limited BW, No Guarantee's
- No Network "Insight", Little Visibility, Limited Decision Making Tools

❖ The NAVY's Future WAN will be:

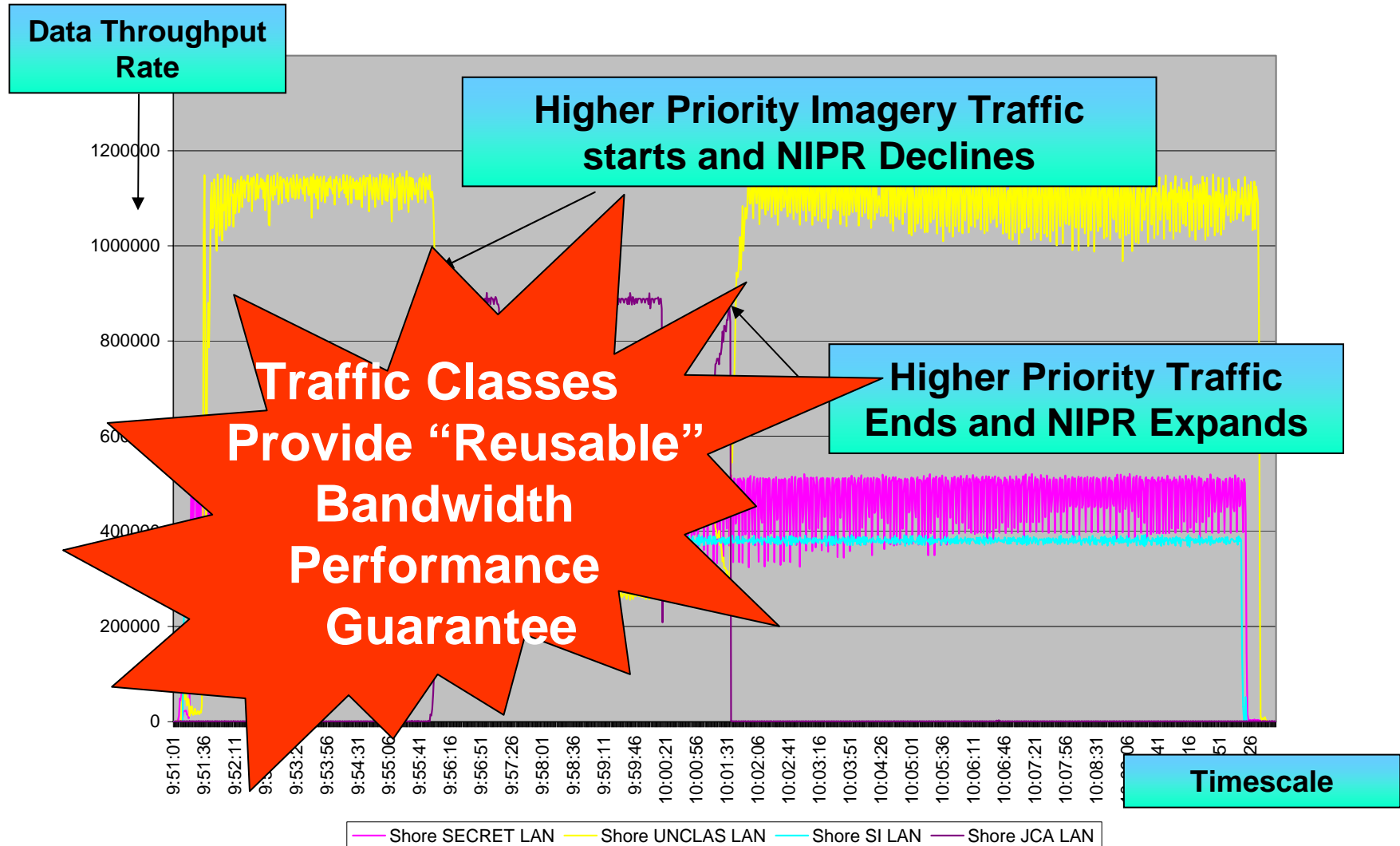
- Bandwidth Efficient, Possess Multiple Survivable Paths, Contain Quality of Service Guarantee's and Provide Network Visibility to Remote/Local Users

***ADNS is the NAVY's POR for WAN Networking
and The Mechanism to Accomplish this Vision***



Incr II BW Guarantees

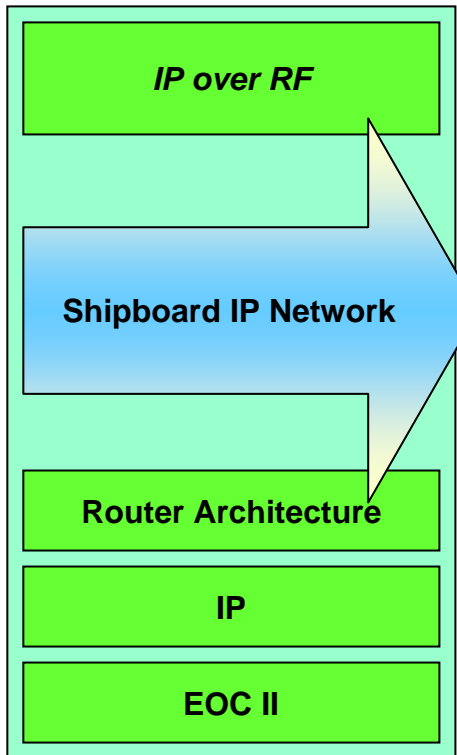
JCA & Unclass via CWSP (1024 kbps)
Secret via DSCS (512 kbps), SI via EHF (384 kbps)



ADNS Increments

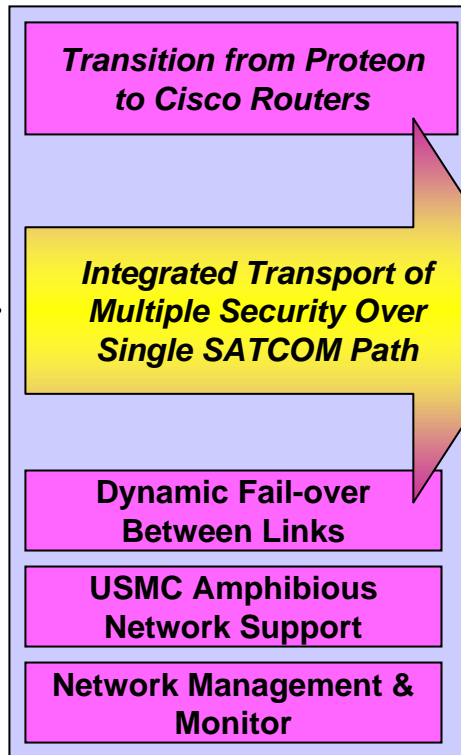
Pre Incr I

1988-1997



Increment I

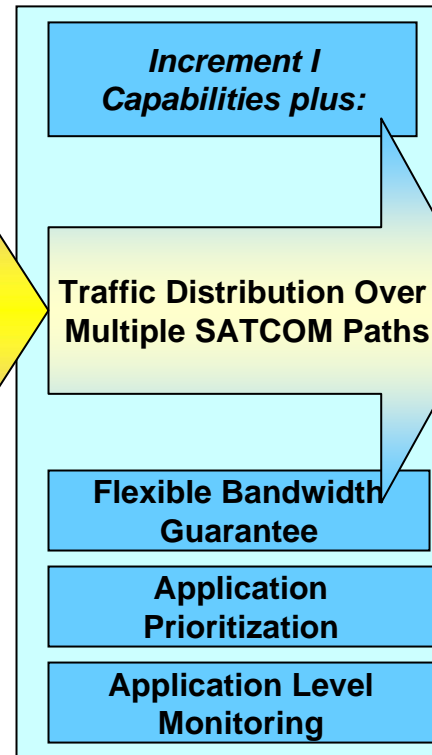
1997-2005



AN/USQ-144B(V)2/4
AN/USQ-144C(V)2/3/4
AN/USQ-144D(V)1/2/3/4
AN/USQ-144E(V)2/4
AN/USQ-144F(V)2
AN/USQ-144G(V)2/4
AN/USQ-144(V)5

Increment II

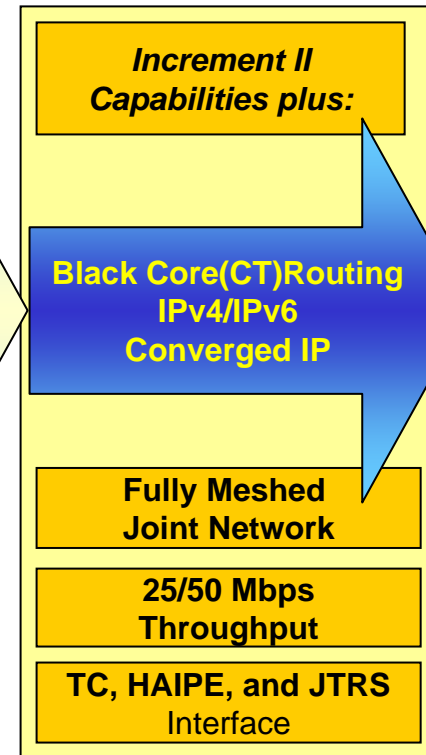
2005-2008



AN/USQ-144D(V)1
AN/USQ-144H(V)2/4
AN/USQ-144J(V)2/4

Increment III

2008



TBD



Summary



- ❖ IT-21 comprises many systems
- ❖ Navy needs to continually provide core enterprise LAN and WAN services to the Afloat and airborne platforms